

CASTLEMAINE NATURALIST

OCTOBER 1976

7

President: Mr R. Bradfield.
Secretary: Mrs R. Mills
Treasurer: Mr L. Bransgrove.
Newsletter: Mr E. Perkins.

Monthly meetings are now held on the second Friday of each month, at 8 p.m. in the Castlemaine Education Centre (SEC building, Mostyn St) Visitors and prospective members are invited to attend the club's sessions.

Number 2 of a series on local orchids by Mrs R. Mills

MICROTIS PARVIFLORA - SLENDER ONION ORCHID

Flowering period in this district is Oct-Dec.

This tiny orchid is quite common in the bush around Castlemaine, where it is usually only 7 to 30 cm high, with a solitary long narrow leaf. The tiny green flowers, about 1 mm long, with the ovary no more than 1.5 mm long, are on a short pedicel. The flowers are in a dense elongated terminal spike of about 30 flowers.

EXCURSION TO UNKNOWN MINERS GRAVE GULLY 18/9/76

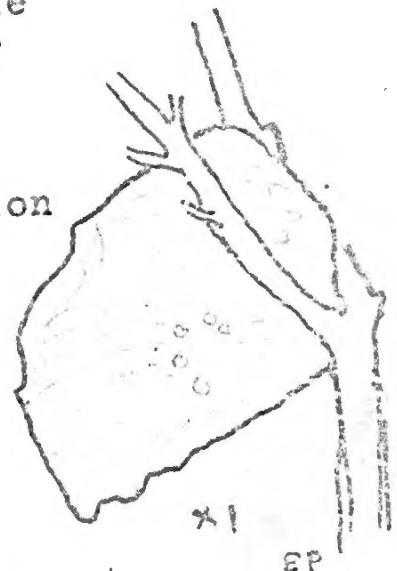
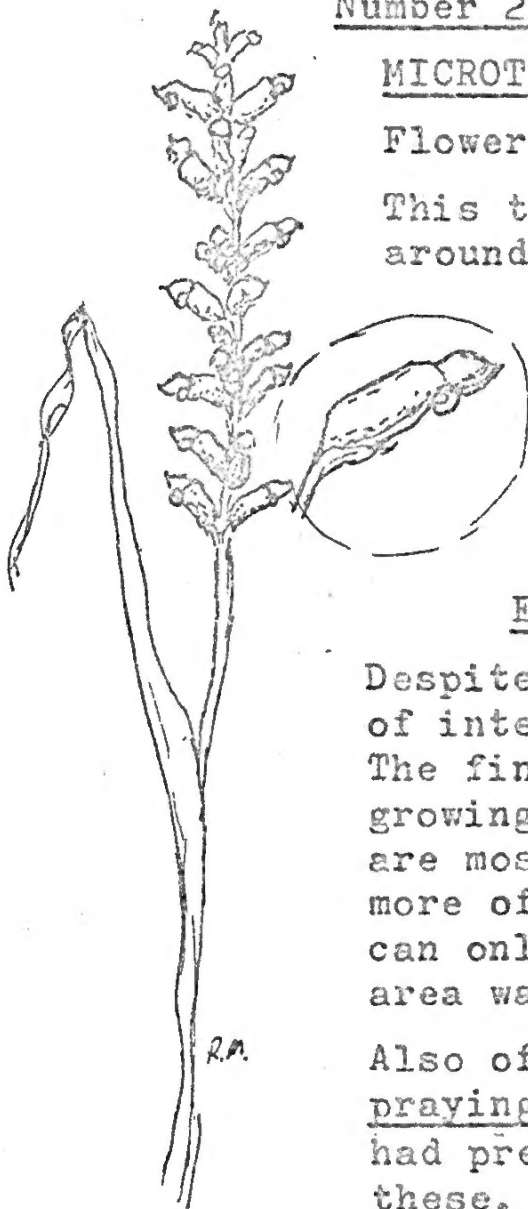
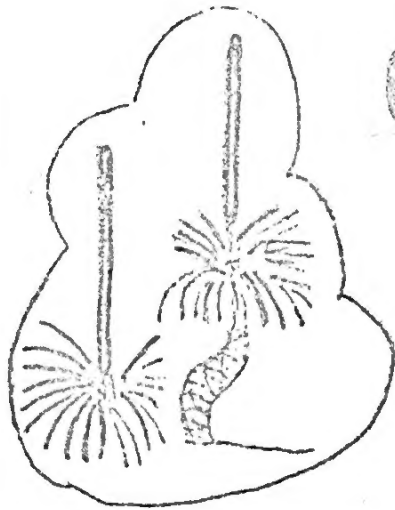
Despite the dry conditions the excursion was full of interest.

The final destination was to the tree-fern still growing in a creek in the pine forest. Tree-ferns are most unusual in this district, being found more often in much moister areas. One can only wonder what this particular area was like before clearing.

Also of interest was a cocoon of a praying mantis. Some on the excursion had previously collected some of these, only to find that wasps emerged. Close inspection of our

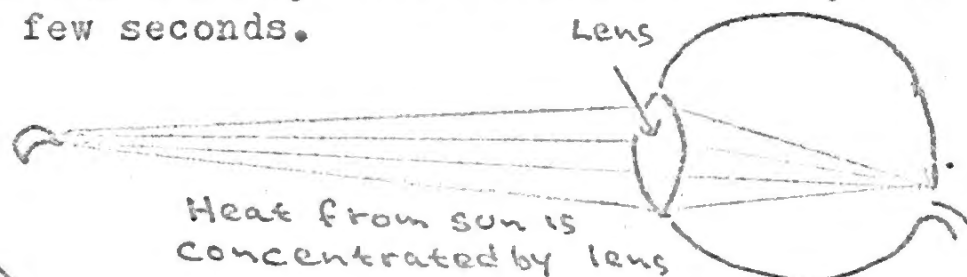
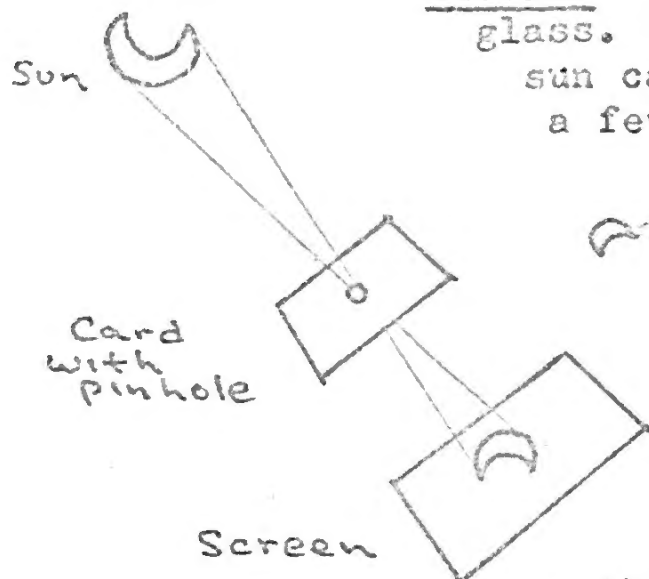
cocoon showed a number of small holes - perhaps this mantis had also been parasitised by wasps.

Other plants of interest were Dusty-miller (with dusty-white leaves around the small white flowers, and smooth parrot-pea.



THE TOTAL SOLAR ECLIPSE - October 23rd, 1976

CAUTION The lens of the eye acts as a burning-glass. Heat rays from even a partly eclipsed sun can destroy the retina of the eye in a few seconds.



Do not look directly at the sun

Filters may not block out harmful heat rays or ultra-violet rays even if they block out most of the light.

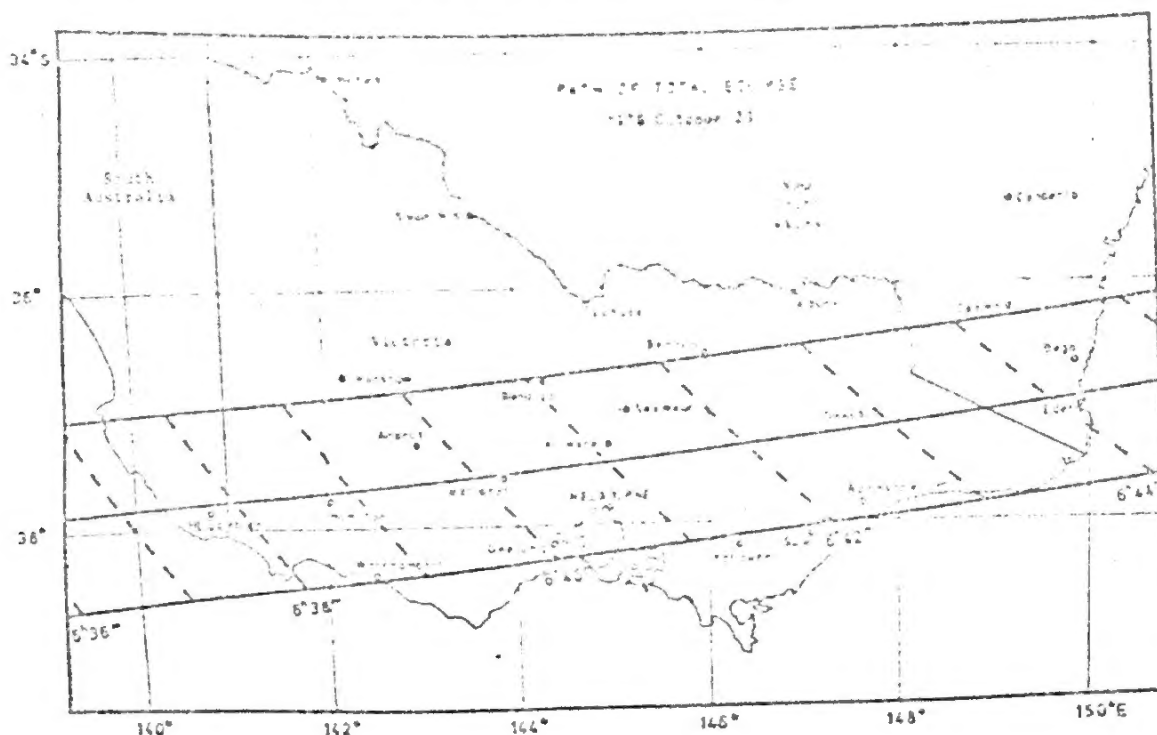
The only perfectly safe way to watch the progress of the eclipse is to use a pinhole; allow the light to pass through a pinhole on to a white sheet. A pinhole in a cardboard carton could be suitable.

How is an eclipse caused?

An eclipse of the sun occurs when the shadow of the moon falls on to the earth.



The map shows the parts of Victoria in complete shadow (total eclipse) on October 23rd. The area of partial eclipse is much wider, and extends to New Guinea and Antarctica.



Why are Eclipses so Rare?

The Moon, sun and earth need to be in a straight line for an eclipse to occur. In the sketch the three are shown to scale.

Sun Moon



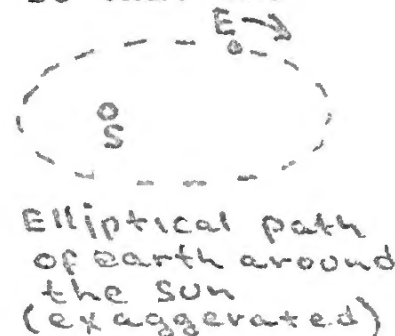
Earth

As the plane of the Moon's orbit is at an angle of 5° to that of the Earth, it is rare for the two to be in line.

Annular and Total Eclipses

Both the Earth's and Moon's orbits are elliptical, so that the apparent diameter of the Sun and Moon appear to alter during the year. During the 1958 eclipse in Japan, the Moon appeared smaller than the Sun, and an annular eclipse was observed.

For our eclipse, the moon's diameter will appear to be 1.048 times that of the Sun, and we will have a total eclipse.



The Chances for a Clear Sky

The chances for a clear sky are not good. Weather records at Bendigo show that for Oct 20-26 over the past 19 years there has been only 13 days with a clear sky. The chances for a clear sky are thus about 1 in 10. On the other hand, there is a 2 in 3 chance of the sky being $3/4$ overcast or more.

If the sky is overcast all we will notice is a short period of darkness during the eclipse.

October 23rd, 1975, was wet throughout Victoria, leading to flooded rivers.

Times for the eclipse

The time of the eclipse varies from place to place. At the Castlemaine market, the times are:-

Partial eclipse begins :	12.4 seconds after 3.33 p.m.
Total eclipse begins:	36.8 seconds after 4.39 p.m.
Mid eclipse:	50.7 seconds after 4.40 p.m.
Total eclipse ends:	4.6 seconds after 6.42 p.m.
Partial eclipse ends:	1.5 seconds after 5.42 p.m.

The eclipse will thus last for 2 minutes 27.8 seconds; the partial eclipse will last for several hours.

At the High School the eclipse will be 0.6 sec later, and last for only 2 min 26.0 sec.

Where to see the Eclipse

A site on a high mountain could be above cloud cover and ensure a clear sky. One group of Astronomers has chartered a Boeing 727 - this will fly at 10 000 m or more to be above the clouds; by going in the direction of the eclipse the time will be extended by 20 sec. If the Concorde was used, totality could extend to 1 hour 35 minutes.

A hill with good views could be a good place to watch events; a good view to east or west would enable the observer to watch the shadows approaching or receding. If distances to far points are known, the speed of the shadow could be calculated.

Observation of the Planets

Mars, Mercury and Venus should all be visible during the eclipse.

Venus is so bright that it should be visible well before the total eclipse. It will be a good chance for those who have not previously seen Mercury to do so.

Mercury with a magnitude of -1.0 should be a conspicuous object just below the sun and Spica.

Venus
(mag -3.4)

Mars (mag -1.8)

Observation of Stars

In the past, stars down to magnitude 3 have been seen during eclipses (Star brightness is given in Magnitudes; a bright star is magnitude 1, a magnitude 5 star is just visible on a dark night, very bright objects may have magnitudes less than 1 e.g. Venus is at present -3.4)

It would be a good idea to observe the stars at sunset for a few evenings in advance (taking into account the rotation in several hours) so that stars can be located during the eclipse.

Sun/Moon

• Spica
(mag 1.2)

Mercury
(mag -1.0)

• γ Virgo
(mag 2.9)

Western sky at
Totality

The pointers and Southern Cross should be mostly visible. The fourth star of the cross (δ Crucis) has only been reported as being seen only twice before.

• γ

• β

• δ

• ϵ

• α

Cross

The Brightest Objects

The ten brightest stars/planets above the horizon will be

Venus	mag -3.4	Vega	mag 0.0
Mercury	mag -1.0	Achernar	mag .5
Canopus	mag -0.7	β Centauri	mag 0.6
α Centauri	mag -0.3	Altair	mag 0.8
Arcturus	Mag -0.1	δ Crucis	mag 0.8

Photographing the Eclipse

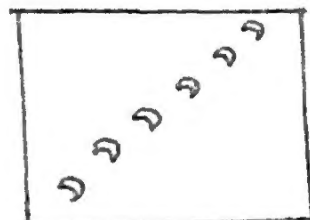
Do not look at the sun through a camera view finder- blindness could result - and also damage to the camera could occur.

A pinhole camera is suitable for photography of the partial eclipse. One design uses a 4 gallon drum with a press lid. With this camera, sharpest image is with a pinhole of 0.5 mm diameter. This is about f 700, and an exposure of 1/10 sec is needed with enlarging paper. (ASA 2)

Accurate alignment is not essential.

A number of exposures are possible on the one sheet e.g at 5 minute intervals.

Practise beforehand is desirable.



Things that occur during an eclipse

1. Shadows under trees during the partial eclipse. The holes between leaves act as pinholes.
2. The Clouds Do they change colour as at dusk and dawn?
3. The stars and planets
4. Shadow bands These last for a short time before and after totality; they are bands of wave-like shadows moving across the ground. A white sheet spread on the ground will help make them visible.
5. Baily's Beads can be seen for a second or two just before the start of totality. The light shining through the gaps and valleys of the moon's craters and mountains gives the appearance of a shining string of beads.
6. The Chromosphere This is visible after Baily's beads for a few moments, just before totality. It is the red light of burning hydrogen in the zone to about 10 000 km above the Sun's surface.
7. The Corona This is seen at totality as a halo around the Sun. There is the inner and outer corona. In the inner corona, solar prominences (tongue-like jets shooting out from behind the moon's rim) may be seen. In the outer corona, equatorial streamers may be visible. These may extend several diameters out from the sun.
8. Diamond Ring Effect This is similar to Baily's beads and occurs for a second or so just after totality. It appears as a bright light in one spot with a thin ring of light.

OPERATION BLACKOUT

Operation blackout is a project being conducted by Monash University. It will involve hundreds (particularly school students) throughout the state. Some projects include:-

1. Behaviour of some mammals Animals such as bats, mice and possums may show more open movements than they normally do at this time of day.
2. Calls of Frogs and Crickets Listen for number, type and intensity of calls; compare with normal dusk behaviour. These could be tape recorded.
3. Studies of Insects Feeding patterns of bees, ants or flies to be studied using appropriate food baits during the period 3.30 p.m. to sunset on a few preceding days. Light traps could be used to compare activities. Will mosquitoes become more active during the eclipse?
4. Behaviour of Flocks of Birds Roosting behaviour of domestic and/or other birds.
5. Behaviour of Raptors (Hawks etc) Wedge-tailed eagles will be soaring on thermal currents during the day. How are they affected when the eclipse begins?

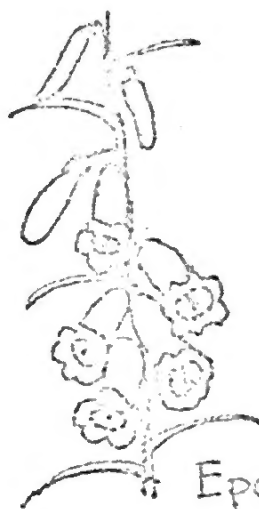
SOME PLANTS SEEN ON THE RIDGE RD, MUCKLEFORD AND MALDON EXCURSIONS
 (Sketches are from the excursion notes prepared by G. Sitch)



Acacia aspera



Acacia acinacea.



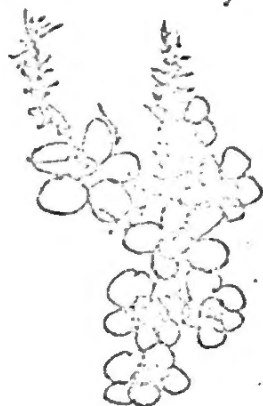
Epacris impressa.



Gompholobium huegeli.



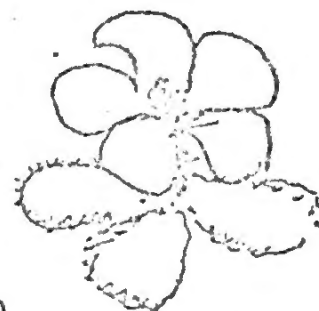
Correa reflexa



Hibbertia fascicularis.



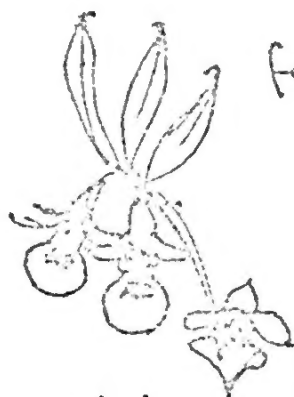
Leucopogon virgatus.



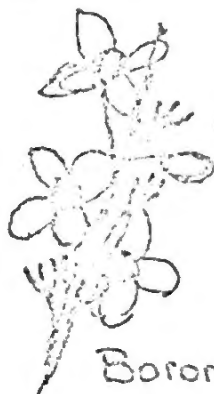
Drosera whittakeri.



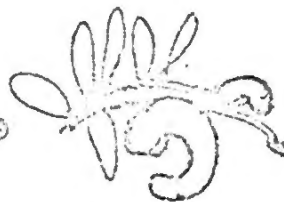
Dillwynia sericea.



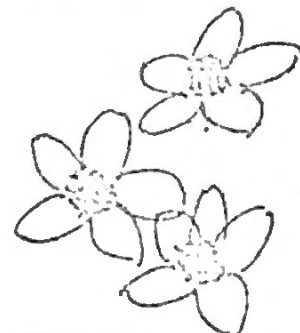
Hybanthus floribundus



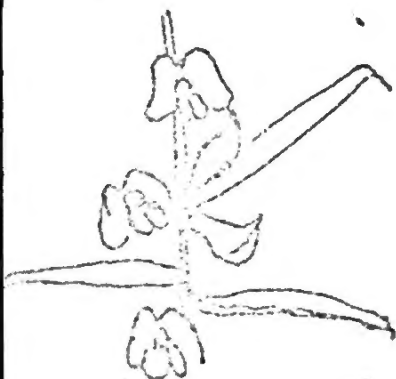
Boronia anemonifolia



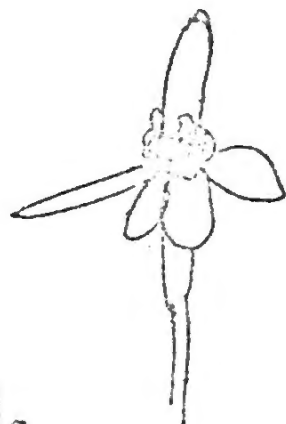
Grevillea alpina



Eriostemon verrucosus



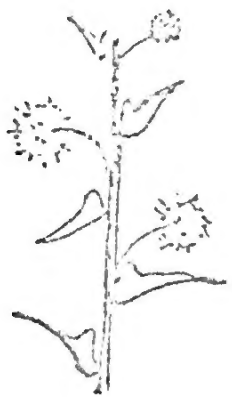
Hovea heterophylla



Caladenia carnea.



Platyglobium formosum



Acacia gunnii



Acacia paradoxa.
(*Ac. armata*)



Acacia genistifolia
(*A. diffusa*)



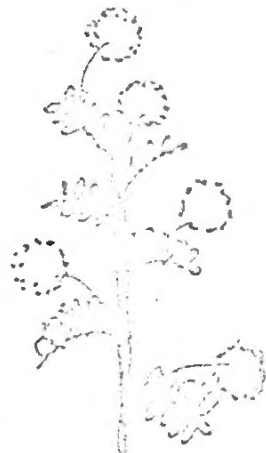
Acacia laniger



Acacia dealbata



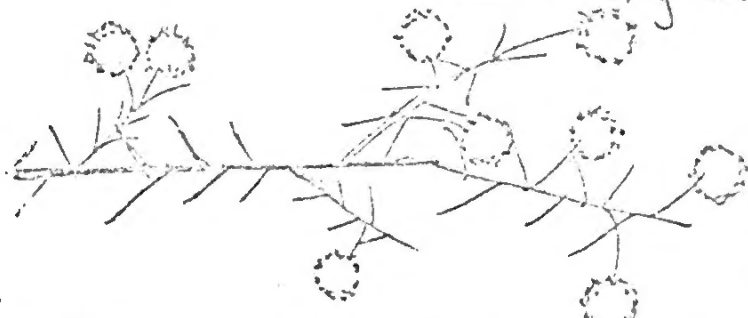
Acacia oxycetras



Acacia mitchellii



Acacia pygmaea



Acacia aculeatissima.

ECOLOGICAL AREA

Pursuant to section 9(3)(b) I hereby give notice of the publication of the descriptive report on Public Land within the Coorong and Study Area and that the report is available for inspection at the offices of the Land Conservation Council, 434 St. Kilda Road, Melbourne, or from the date of this notice. Copies of the report may be purchased from this office at a cost of \$1 per copy plus \$1 for postage and packaging.

Age
Sept 4, 1976

The good oil of the future

Age
9/19/76

SAN FRANCISCO, Sep. 3. — A type of tree that grows on land not suitable for farming could supply the US with an indefinite supply of fuel for all sorts of vehicles, according to a Nobel Prize winner.

Dr. Melvin Calvin, of the University of California and winner of the chemistry prize in 1961, made the suggestion at the meeting of the American Chemical Society here yesterday.

Trees and plants of the genus euphorbia — similar to the rubber plant — produced a milky juice which was a hydrocarbon exactly like crude oil, Dr. Calvin said.

"All you have to do is cut off a piece of this plant and let the juice drip into a barrel. It's just like what you get out of the ground, only it's completely clean," he said.

Dr. Calvin said his rough guess for the cost of such fuel might be \$7 a barrel — about the same as oil produced in the US and considerably less than the price of more than \$11 a barrel charged by the Organisation of Petroleum Exporting Countries.

Dr. Calvin said a one million square mile forest of euphorbia plants could supply the US with the amount of petrol it now uses. This would be a forest 10 times the size of Alaska.

CLUB PROGRAM - Meeting night is now the 2nd Friday

October Meeting Friday Oct 8th
Forest Commission- Film.

Members session-Orchids. Club photographers are asked to show half a dozen orchid slides.

November meeting Frid Nov 12th.

Speaker: Mr J. Wheeler. Mr Wheeler is a member of the Geelong FNC and the author of the booklet detailing care of sick and injured native animals. He conducts the weekly nature notes in the Ballarat "Courier".

Subject: Setting up a nature reserve; care of sea birds.

December meeting Friday Dec 10th.

Speaker: Mr A. Hartup.

Subject: Local plants and animals.

Subscriptions(Half year)

Family: \$2.50

Single: \$1.50

Junior/Student: 50 ¢

Club Magazine/Newsletter

This is free to members. It can be obtained at meetings or from Mr Bradfield at the Market. It is usually available for a week before meetings.

Items from members for the newsletter are asked for.

Whipstick Camp-out The Western Victorian Field Naturalists Clubs Association meeting will be at the Huntly Hall at 6.30 on Oct 17. We will need a delegate.

Past Issues of Newsletter Copies of some issues are still available from the editor.

Sunday Oct 10th Tarnagulla
Joint excursion with the Historical Society. Final decision depends on bookings. Cost is \$2; bookings should be made with Mr Bradfield (at market) by Oct 3rd.

Bus leaves Education Centre at 10.00 a.m.

Saturday Oct 16 Whipstick
This is part of the WVFNCA camp-out, hosted by Bendigo FNC.

9.30 Depart from Huntly Hall for Wellsford Forest or Distillery.

12.00 Lunch

1.30 Depart from Huntly Hall for Whipstick Forest Park.

6.30 WVFNCA meeting

8.15 "History of the Whipstick"
Speaker: W Perry
Place: Huntly Hall.

Sunday Oct 17 Whipstick

9.30 Depart from Huntly Hall for Central Whipstick

Noon Lunch (Ruedins)

1.00 Northern (Kamarooka) Forest.

3.00 Nature table, Aft tea.

Sunday Oct 17 Bells Swamp & Drummond Bush Joint excursion with the Maryborough FNC.

Meet at Bells Swamp (on Maldon-Dunolly Rd) from 10.30. Lunch is at the swamp.

Saturday 13 November Barfold
Departs at 1.00 from Education Centre for Barfold Gorge.

December Excursion-Mt Alexander

We were wrong

In the last issue, the name of Hedge Wattle was incorrect. The correct name is now *Acacia paradoxa* (syn. *A. armata*). This name was first given last century by De Candolle. *A. cognata* is the new name for *A. subporosa*. The mistake was made by the typist.